

Amendments to the Claims

1. (Currently Amended) An IC fabrication-compatible spiral inductor, comprising

a) the inductor having vertically stacked planar coils made from a plurality of spaced conductive layers,

b) the stacked planar coils being electrically connected by coil connectors;

e) a magnetic core disposed at a center of and extending perpendicular to each of the planar coils and comprising a plurality of vertically stacked and aligned magnetic elements ~~between the plurality of spaced conductive layers and being located within the stacked planar coils.~~

2. (Currently Amended) The inductor of Claim 1, wherein ~~the magnetic element materials are~~ a material forming the magnetic elements is compatible with at least one of CMOS or BiCMOS fabrication technology.

3. (Currently Amended) The IC fabrication-compatible spiral inductor of Claim 1, wherein the magnetic elements comprise electrically conductive and magnetic material.

4. (Currently Amended) The IC fabrication-compatible spiral inductor of Claim 1, wherein the coil connectors comprise the same material as the magnetic elements.

Serial No.: 10/789,893

5. (Currently Amended) The IC fabrication-compatible spiral inductor of Claim 4, wherein the magnetic core comprises an array of magnetic element bars within the magnetic core.

6. (Withdrawn) The inductor according to Claim 5, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

7. (Original) The inductor according to Claim 4, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

8. (Currently Amended) The IC fabrication-compatible spiral inductor of Claim 1, wherein the magnetic core comprises an array of magnetic element bars within the magnetic core.

9. (Withdrawn) The inductor according to Claim 8, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

Serial No.: 10/789,893

10. (Original) The inductor according to Claim 1, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

11. (Currently Amended) The inductor of Claim 1, wherein the inductor has a footprint dimension of about $75\mu\text{m} \times 75\mu\text{m}$ or less.

12. (Currently Amended) The inductor of Claim 1, wherein the inductor is a 10nH inductor with a footprint dimension of less than $25\mu\text{m} \times 25\mu\text{m}$ in a $0.18\mu\text{m}$ six layer metal interconnect copper CMOS technology.

Claims 13-27 (Canceled)

28. (New) The inductor of Claim 1, wherein each of the magnetic elements is disposed between two of the plurality of spaced conductive layers.

29. (New) A single chip IC comprising the inductor of Claim 1 and a core circuit electrically connected to the inductor.

Serial No.: 10/789,893

30. (New) An IC fabrication-compatible spiral inductor, comprising:

a plurality of planar coils disposed in a stacked and parallel orientation;

a plurality of coil connectors electrically connecting the planar coils;

and

a magnetic core extending perpendicular to and through a center of each of the planar coils.

31. (New) The inductor of Claim 30, wherein the magnetic core comprises a plurality of stacked and aligned magnetic elements.

32. (New) The inductor of Claim 31, wherein each of the magnetic elements is disposed between two of the plurality of planar coils.

33. (New) The inductor of Claim 31, wherein the magnetic elements comprise an electrically conductive and magnetic material.

34. (New) The inductor of Claim 31, wherein the magnetic elements and the coil connectors comprise the same material.

35. (New) The inductor of Claim 31, wherein the magnetic element materials are compatible with at least one of CMOS or BiCMOS fabrication technology.

Serial No.: 10/789,893

36. (New) The inductor of Claim 30, wherein the magnetic core comprises an array of parallel magnetic element bars within the magnetic core.

37. (New) The inductor of Claim 36, wherein each magnetic element bar of the array of parallel magnetic element bars within the magnetic core comprises a plurality of stacked and aligned magnetic elements.

38. (New) The inductor of Claim 36, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

39. (New) The inductor of Claim 30, further comprising a film of magnetic material located at at least one end of the stacked planar coils.

40. (New) The inductor of Claim 30, wherein the inductor has a footprint dimension of about $75\mu\text{m} \times 75\mu\text{m}$ or less.

41. (New) The inductor of Claim 30, wherein the inductor is a 10nH inductor with a footprint dimension of $25\mu\text{m} \times 25\mu\text{m}$ in a $0.18\mu\text{m}$ six layer metal interconnect copper CMOS technology.

Serial No.: 10/789,893

42. (New) A single chip IC comprising the inductor of Claim 29 and a core circuit electrically connected to the inductor.